

Public Health for the 21st Century, with Kenneth Olden

Ernie Hood

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The global population is undergoing sweeping changes that are shifting the balance toward an older and more urbanized population that experiences more chronic disease and a greater gap between rich and poor. In this podcast, Kenneth Olden tells what these changes mean in terms of public health challenges and how he believes we must prepare to meet these challenges. Olden was director of the NIEHS and the National Toxicology Program from 1991 to 2005. He served as NIEHS director emeritus and continued his research activities at the institute until 2008, when he left to help establish a new school of public health at the Hunter College campus of the City University of New York.

AHEARN: It's *The Researcher's Perspective*. I'm Ashley Ahearn.

Public health in the 21st century means different things than it did in the past. Public health practitioners still fight epidemics same as they did in the days of pioneers like John Snow and Edward Jenner. But today, a new set of societal dynamics are at play too. Around the world urbanization, poverty, an aging population, and changing environmental exposures all contribute to new challenges in promoting and protecting public health.

And according to Dr. Kenneth Olden, the field of public health needs to adapt to these changes. He's the former director of the National Institute of Environmental Health Sciences and the National Toxicology Program. He's also the founder of the School of Urban Public Health at the City University of New York.¹

Science writer Ernie Hood asked Dr. Olden for his take on the current state of public health and public health education.

HOOD: What do you see as the major public health challenges we face in the 21st century?

OLDEN: Well, I think there are four challenges, and one of those is urbanization. People

are migrating from the rural areas into cities in large numbers, and this is a global phenomenon. It's happening all over, in China, Japan, Africa, and the U.S. But as people migrate into these cities, they are overwhelming the public health infrastructure. Cities were not made for these large populations, so there are issues related to pollution, disposal of waste, and not to mention the stress associated with noise and having lots and lots of people around you all the time. So urbanization is one of [the four challenges].

Aging of the population is another. This is the demographic shift that's occurring all over the world as well. People are living longer, we're having fewer children, and so there's a demographic shift to older people. Now, as the people age, then, we'll have increased prevalence of chronic diseases as people reach 65 and older. So aging of the population is just one of the issues, and so what we have to do is promote healthy aging, so that people can live to be 80 or 90 or more, longer, but be healthy and independent and not dependent on the health care system or our social systems.

So healthy aging is an issue, and aging is a challenge, but increasing prevalence of chronic diseases that we are now facing epidemics of—not infectious diseases but chronic diseases. Now, worldwide, and I think by the year 2020, chronic disease is supposed to be the major cause of morbidity and mortality worldwide.² So we've got to make sure that we do the work that really impacts things like cancer, Alzheimer's, Parkinson's, diabetes, obesity, hypertension. These are the major killers. They are here in New York, and they are all over the world.

And finally, the fourth issue is disparities in health. We've known for a large number of years that poor people and racial and ethnic minorities, because they're disproportionately poor, have worse outcomes than others. But the gap between the poor and those of us who are better off is growing. So it's going to be a major problem, and particularly in cities, because the people now who live in cities, in large measure, are the two extremes—they're very rich, and they're very poor. So the gap is growing, and we have to figure out what we need to do to prevent and promote healthy lifestyles among the poor.

HOOD: Dr. Olden, each of those challenges you described involves interaction with the

environment. How do you see the environmental health sciences and public health working together to meet those challenges?

OLDEN: Well, I think the environment is a major contributor here because it's clear you cannot explain disparities in health, the epidemic of chronic diseases among aging people, due to genetics, because the changes have been too rapid. So it is environmental, and environment is in the domain of public health because that's prevention. And the fact that there are disparities, which means that some people have a good life free of certain diseases while others are not, at least that indicates that at least these diseases and morbidity and mortality associated with environmental exposures are preventable. So I think the major contributor here is environmental exposures interacting with a constant genetic substrate.

So I think when we actually address and acknowledge the fact that this is the case—in other words, we are not going to solve the problem, the riddle, of complex diseases until we understand how genes and environment interact with behavior to cause these dysfunctions and diseases and illness. So the environment is the major player, and I think environmental efforts have been underappreciated. But clearly there is a greater appreciation for the contribution of the environment in many circles now, in clinical settings, and I think with time the environment will be on par, and public health will be on par, with basic fundamental research and clinical research.

HOOD: Dr. Olden, I know you're planning to institute an innovative structure at the CUNY School of Public Health. How do you see that contributing to improving translation of research into practice?

OLDEN: Well, we're going to train a cohort of students, people who are going to go out into the work force who are accustomed to working together in teams, and people who can appreciate the knowledge, the expertise, and the value system and perspectives of people working in different fields. I think that is what in fact is needed. For example, if we use the community as a classroom to train students, we'd need all of the health professions involved—the public health practitioners, nurses, physicians. Because if you go into a community setting, the issues that people face are very difficult, are very

complex, and you can't just solve one of their problems, because there are a number of factors, a number of issues that need to be addressed to promote healthy living and healthy aging and good health.

And so we just need people to be trained differently, because it's the mindset that's going to make a difference, it's the attitude. It's the respect for other disciplines that's going to be important. So I think if we train people right, then the respect will be there, and appreciation will be there, and we will discover that we will get better results, and that's, I think, what public health is about.

AHEARN: That was Dr. Kenneth Olden talking with science writer Ernie Hood. Dr. Olden is the former director of the National Institute of Environmental Health Sciences and the National Toxicology Program. He's also the founder of the School of Urban Public Health at the City University of New York.

And that's *The Researcher's Perspective*. I'm Ashley Ahearn. Thanks for downloading!

Ernie Hood is a science writer, editor, and podcast producer in Hillsborough, North Carolina. He also produces and hosts the weekly science radio show *Radio in Vivo*.

References and Notes

¹ School of Urban Public Health [website]. Undated. New York, NY: Hunter College, City University of New York. Available: <http://tinyurl.com/2cyqvhg> [accessed 11 Oct 2010].

² WHO. Integrated Chronic Disease Prevention and Control [website]. Undated. Geneva, Switzerland: World Health Organization. Available: <http://tinyurl.com/2f5nzll> [accessed 11 Oct 2010].